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ABSTRACT

This study examined the role of empathy in the choice of syntactic form and the degree of independence of pragmatic and syntactic abilities in a range of aphasic patients. Study 1 involved 9 English-speaking and 9 Japanese-speaking aphasic subjects with 10 English-speaking and 4 Japanese normal controls. Study 2 involved 14 English- and 6 Japanese-speaking aphasics and 9 English- and 1 Japanese-speaking normal controls. The task of Study 1 was to narrate cartoon sequences involving interactions between animate and inanimate entities. In Study 2, single-frame cartoons were described that systematically varied the animacy of the undergoer. Multi-frame narratives were compared across subjects on a frame-by-frame/proposition-by-proposition basis. Study 1 results indicated that causal efficacy and movement were additional factors in the choice of an inanimate as subject/topic. In Study 2, the distribution of overt empathic focus markings showed an empathy gradient for aphasics and normals alike. Findings indicated that aphasics and normals preferred to begin sentences by mentioning or referring to the empathic focus first. (Contains 18 references.) (Author)

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Cognitive factors in the choice of syntactic form by aphasic and normal speakers of English and Japanese: The speaker's impulse

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Experimental narrative-elicitation studies of aphasic and normal speakers of English and Japanese were carried out to examine two issues: (1) the role of empathy in the choice of syntactic form and (2) the degree of independence of pragmatic and syntactic abilities in a range of aphasic patients. Previous work (beginning with Bates, Hamby, Zurif 1983, Ulatowska et al. 1981, 1983) has established agrammatic aphasic patients' sensitivity to information flow and to aspects of narrative structure.

Our research indicates that the pragmatic construct 'empathy' also has predictive value for sentence choice in both aphasic and normal speakers; that pragmatic abilities in our patients are similar to normals; and that the gross production error of interchanging subject and object (found in several types of patients, not just agrammatics) can be understood in terms of a conflict between relatively preserved pragmatic competence and limited syntactic ability.

'Empathy' is treated as a psychological primitive (Kuno 1987), an attitude of identification or shared viewpoint with a participant in an event. This mental state may or may not have an overt linguistic marking. Marked empathic focus was operationally defined for the present study of narratives as the use of passive (in English, be- or get-passive), undergoer fronting (e.g. 'He is drowning; dog save him'), direct discourse ('Ouch!, *'Itai '*), deixis (e.g. 'The ball comes and hits him'), intensive expressions ('right in the face'), reference to someone's mental state, and evaluation of someone's skill or luck.

In study 1, data from nine English-speaking and nine Japanese aphasic subjects were used. In study 2, fourteen English-speaking and 6 Japanese aphasics gave scorable oral responses. In Study 2, the English speakers included 5 Broca's, 1 mixed non-fluent, 2 Wernicke's, and six anomic aphasics. The six Japanese aphasic respondents were 1 Broca's, 3 mixed non-fluents, 1 mild Wernicke's, and 1 anomic aphasics. There were ten English-speaking normal controls and four Japanese normal controls in Study 1, and nine English-speaking age-matched normal controls and one Japanese control in Study 2.

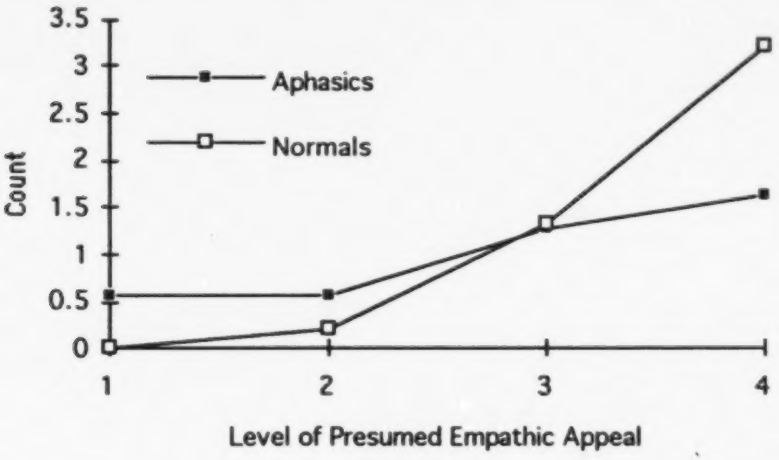
The task in Study 1 was to narrate cartoon sequences involving interactions between animate and inanimate entities; in study 2, to describe single-frame cartoons which systematically varied the animacy of the undergoer. Multi-frame narratives were compared across subjects on a frame-by-frame/proposition-by-proposition basis.

Aphasics and normals were alike in preferring to begin sentences by mentioning or referring to the empathic focus first. All normal and aphasic subjects further appeared to be similar in their choices of which participants in each frame to encode as subject/topic, and which ones to mark as empathic focus: the more animate an undergoer, the more likely the responder was to mark it. Animates were chosen as subjects/topics in 71% of clauses (403 animate vs. 164 inanimate subjects/topics) in study 1.

In Study 2, the distribution of overt empathic focus markings showed an empathy gradient for aphasics and normals alike (see Figure). English-speaking normal subjects used zero empathic markings on the pair of pictures intended to be the 'least empathic' (truck, empty sled undergoers) and an average total of 3.22 markings on the two pictures designed

to be the 'most empathic' (human undergoers). English-speaking aphasic subjects used an average of .57 empathic markings on the two 'least empathic' pictures and 1.64 markings on the two with human undergoers. Both subject groups showed highly significant linear trends (normals, $F(1) = 58.26$, $p = .0001$; aphasics, $F(1) = 19.65$, $p = .0007$).

Study 2, English Oral Responses. Mean frequency of empathy markers used for undergoer by aphasics and normals for each level of presumed empathic appeal.



When individual types of empathic marking were examined, normals showed the same linear trend for use of Undergoer Fronting ($F(1) = 40.36$, $p = .0002$) and for Passive/get-passive ($F(1) = 7.48$, $p = .0257$). Aphasic subjects failed to show a significant empathy gradient in the use of these syntactic devices (for Undergoer Fronting ($F(1) = 2.10$, $p = .1711$ n.s.); for Passive/get-passive ($F(1) = 1.80$, $p = .2025$ n.s.)). Instead, it was in their use of non-syntactic markers - deixis, mental state, direct discourse, and 'expressive locative' ('right in the face') - that they responded to the empathy gradient.

Study 1 also indicated that causal efficacy and movement were additional factors in the choice of an inanimate (wind, falling apple) as subject/topic; topicality (protagonist status), which is closely associated with empathy, was a factor when the choice of subject/topic was between two animate participants.

The preference for beginning sentences by referring to agents and animates, found in agrammatic aphasics by Saffran et al. (1980), can be explained as a consequence of the more general preference for beginning with the empathic focus, since empathy tends to lie with animates, and agents tend to be animates.

All the observed empathic marking phenomena were found in both fluent and non-fluent patients; however, the number of subjects in each diagnostic category (Broca's, mixed non-fluent, anomic, and Wernicke's) was not enough to test for syndrome-specific tendencies in either study.

Attempts to front the undergoer or perhaps to form the passive led to occasional errors and/or self-corrections in the output of non-fluent patients, as found by Schwartz et al., e.g. "The baby - no - the ball hit the baby" for a child being hit on the head by a ball. Serious errors were also found in fluent patients, e.g. "The ball gets - gets hit - by - the baby", "He hits on the head" (for a boy being hit on the head by an apple).

We argue that beginning with the empathic focus is not properly a 'strategy', as it has been termed, but rather an impulsive response. The occasional error corrections suggest that this impulse may be overridden by a conscious strategy of shifting to an inanimate subject (e.g. the ball) which will permit the use of an active voice verb.

These data show that pre-linguistic pragmatic factors determining the choice among alternative propositional forms (modeled as operating in Levelt 1989's 'microprocessor') include the speaker's impulse, which responds to empathy, among other salience factors (Sridhar 1989, Givon 1983), as well as the speaker's mental model of the hearer's state of knowledge, which is used to compute appropriate referential form and placement of new and old information (Chafe 1976, Lambrecht in press).

Examples (edited to remove minor hesitations and dysarthric errors):

English 'Ball-hits-boy' Narrative:

agrammatic aphasic (self-corrections of sentences begun by referring to animate undergoer)

The baby - no - the baseball hits the baby.

agrammatic aphasic (same subject, another test occasion)

The kiddie - the girl - the baseball (gesture) - the baseball hits the baby.

English 'Hat' Narrative

fluent (severe anomic) aphasic

It's looks like he's had a hat on, and uh the hat is gone off his head and got in the water.

He's betting his cane to put it on, uh, he's getting it out that way.

agrammatic (Broca's) aphasic

First, hat blow off
then the one round - water - spin the - round - water
then hat go into water
cane
then pull out water.

normal

This man is walking ...and the wind comes and blows his hat off, and is going to go in the gutter... I imagine that's a sidewalk, so he picks it up with his cane.

English 'Brick hits lady'

fluent (severe anomic) aphasic

She - looks like her hand is, hand is - it's a...something's wrong with the hand.

agrammatic (Broca's) aphasic

Right arm - lady break - hit arm - sidewalk. In the - sidewalk - ending - ending up sidewalk.

normals (one with cause first, one with undergoer first)

(#1) The brick apparently hit her elbow, and she's wincing, or crying.

(#2) Looks like she is...being... or nearly being hit by the brick. And it looks like she's got her mouth like she maybe sees it coming.

Japanese 'Ball-hits-boy' Narrative

agrammatic aphasic

chibi-chan ga booru o okochita
'Buster'-SUBJ ball-OBJ fall-PAST (intrans)
The boy fell the ball.

Japanese 'Hat' Narrative

fluent aphasic

1. otoko-no ko-ga . . . booshi-o **ura-ni *ton-de-tta
male-of child-SUBJ . . hat-OBJ **back:N-into *fly-CONJ-go-PERF
The boy . . . went flying the hat ***into the back(yard)
*intransitive verb 'go flying' - tobu 'fly' + iru 'go' used with direct object 'hat' (marked with -o)
**The hat flew off backwards' would be Booshi-ga ushiro-ni ton-de-tta, main verb tobu 'fly' intransitive, non-volitional. tobasu is 'fly', transitive (= cause to fly)

2. otoko-no ko-ga . . . booshi-ga . . .eeto ike-ni
male-of child-SUBJ . . . hat-SUBJ . . . well pool-into
The boy . . . The hat, well,

*koro-n-de-isoo da-tta.
*fall (onto solid surface)-CONJ-seem AUX:PERF
looks like it's *hit into the puddle.
*semantic error, verb korobu cannot be used for fall into water. Correct verb would be ochiru 'fall', in the form ochi-te-isoo.

mixed non-fluent aphasic

1. otoosan-ga (Ex: hun) *tsue-o tsue-o hashiru n
father-SUBJ (uh-huh) *cane-OBJ cane-OBJ run m m
The father (EX: uh-huh) runs, mm,

hashiru ja nakute aruku.
run COP+PRT not-CONJ walk
runs, it's not, walks *the cane.
*aruku 'walk' is intransitive. This error is not a functor omission, as 'walks with a cane' is expressed by tsue-o motte aruku 'walks carrying a cane'.

2. booshi-ga booshi-ga booshi-ga kaze-ga fui-te-iru.
hat-SUBJ (3X) wind-OBJ blow-CONJ-AUX
The hat (3X). . . the wind is blowing

3. kodomo-o booshi-ga booshi-ga booshi-ga booshi-ga
child-OBJ hat-SUBJ (4X)
the child the hat (4X)

		kaze-de			
kaze-o	n	*kaze-no	koroga-tte	umi-ni	**chi-chi-chi-o-ochiru.
wind-OBJ	m m	*wind-POSS	roll-CONJ	ocean-into	falls
the wind	m m	*the wind's	rolls and falls into the ocean		

* booshi-ga kaze-de koroga-tte umi-ni ochiru. The hat rolls and falls into the ocean because of the wind' is a possible target structure.

**stammer on the accented syllable of ochiru

	-de	tsukau
4. *tsue-o	*tsuku	
cane-OBJ	*give a push	
He	*gives the cane a push	

*semantic error: verb is wrong, possibly a phonemic paraphasia for tsukau 'use'. Possible target structures are Tsue-o tsukau 'He uses the cane', or Tsue-o tsukatte... 'Using the cane...', idiomatically 'He uses the cane and...'

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